Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of:	)	
	)	
Policies and Rules for the Direct	)	IB Docket No. 98-21
Broadcast Satellite Service	)	

REPLY COMMENTS OF SKYBRIDGE

SKYBRIDGE L.L.C.

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EXECUTIVE SUMMARY

SkyBridge, L.L.C. hereby submits its reply comments on the DBS Notice of Proposed Rulemaking. The Commission, recognizing that U.S. DBS systems are being implemented using technical parameters that differ from the reference parameters of Appendices S30 and S30A of the ITU Radio Regulations, proposed in the NPRM adoption of technical rules for U.S. DBS systems. Because the protection levels established by these Appendices are directly related to the technical parameters contained therein, the Commission also appropriately suggested that the level of protection to be provided to systems using non-standard parameters may be different from the level of protection in the BSS plans. Several parties in this proceeding have suggested that, to the contrary, even noncompliant DBS systems should, in essence, be treated as if they met the established standards.

SkyBridge urges the Commission to reject the arguments of these commenters, and to adopt a modified version of the rules it has proposed, in order to meet a number of important objectives, as follows:

(1) provide flexibility in the implementation of U.S. DBS systems so that they may take advantage of advances in communications satellite technology;

(2) take account of advances in satellite technology by reviewing and revising the protection criteria for U.S. DBS systems using modified parameters;

(3) provide guidance to the designers of U.S. DBS systems as to the technical rules with which they must comply, the degree of protection they can expect from other assignments in the Region 2 plan and other services using the same bands, as well as the level of protection they will have to provide other plan assignments and other services in the bands;

(4) ensure that other Region 2 plan assignments and other services using the DBS bands assigned to Region 2 are not adversely affected by

implementation of U.S. systems using parameters inconsistent with those in Appendices S30 and S30A; and

(5) promote efficient use of the spectrum/orbit resource.

While the proposed rules generally advance these objectives, they do not provide sufficient guidance to U.S. system designers and operators regarding the consequences of divergence from the BSS plans. Most importantly, the rules as proposed do not address how a system which proposes to utilize technical parameters differing from the plan will protect other U.S. systems, either DBS or otherwise, using the same frequencies, nor does the NPRM establish the criteria under which the nonstandard system will be protected from other DBS systems or other systems using the same frequencies. In particular, SkyBridge urges the Commission to modify and augment the proposed rules as follows:

- The Commission should provide more specificity in its rules governing DBS systems proposing to use modified parameters. In particular, the Commission should provide guidance as to the technical showings required under the proposed rules in support of proposed modifications.

- The Commission should ensure that the protection requirements applicable to modified U.S. DBS systems take into consideration technology advancements.

- The Commission should adopt a receive antenna mask defining the level of protection for U.S. DBS systems. In this regard, the Commission should consider adopting the antenna pattern in ITU-R Recommendation BO.1213, which is recognized as achievable from a technological and economic perspective.

No party commenting in this proceeding provided any rational basis for permitting unfettered flexibility in modifications of U.S. DBS systems. Although SkyBridge agrees with the DBS commenters that existing U.S. DBS systems should be protected and that the service should be allowed to develop with reasonable flexibility, the Commission must undertake a review of the appropriate protection requirements for

U.S. modified DBS systems, in view of the vastly changed parameters being employed by such systems. In particular, the Commission must resist the claims of certain commenters that technology will be frozen if it adopts any technical rules for U.S. DBS systems. Despite the extensive technical rules applied to the U.S. FSS since the mid-1980s, innovation has not stopped in either satellite technology or services. The Commission has had extensive experience in finding a balance between allowing for technical innovation and flexibility, while promoting efficient use of the spectrum/orbit resource.

Finally, the Commission must reject the claims of DirecTV that NGSO FSS systems will cause harm to DBS systems. As SkyBridge has demonstrated in a variety of forums, the SkyBridge System, and the provisional power limits applicable to NGSO FSS systems adopted at WRC-97, have been designed to fully protect DBS systems, including modified DBS systems.

For the foregoing reasons, as developed herein, the Commission should seek to adopt policies and rules governing the DBS service that encourage efficient use of the BSS spectrum and orbital resources.

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REPLY COMMENTS OF SKYBRIDGE

SkyBridge, L.L.C., ("SkyBridge"), by its attorneys, hereby submits its reply comments on the Notice of Proposed Rulemaking ("NPRM") in the above-captioned proceeding.[1/] As stated in its initial comments, filed April 6, 1998 (the "SkyBridge Comments"), SkyBridge is an applicant for a Commission license for authority to launch and operate the "SkyBridge System," a global nongeostationary ("NGSO") satellite system, which will provide a wide range of data, voice and video broadband services in the Fixed-Satellite Service ("FSS") in the Ku-band.[2/] SkyBridge proposes to operate downlinks in the 12.2-12.7 GHz band, which is allocated in the United States to the geostationary orbit ("GSO") Broadcasting-Satellite Service ("BSS"). This band also is allocated internationally to NGSO FSS systems, such as

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1/ Policies and Rules for the Direct Broadcast Satellite Service, Notice of Proposed Rulemaking, FCC 98-26 (Feb. 26, 1998) ("NPRM").

2/ Application of SkyBridge for Authority to Launch and Operate the SkyBridge System, File No. 48-SAT-P/LA-97, February 28, 1997 (the "SkyBridge Application"); Amendment, File No. 89-SAT-AMEND-97, July 3, 1997 (the "SkyBridge Amendment").

the SkyBridge System, on a co-primary basis with BSS systems. The SkyBridge System has been designed to fully protect GSO direct broadcast satellite ("DBS") systems operating pursuant to the BSS allocation.

I. INTRODUCTION

The Commission, recognizing that U.S. DBS systems are being implemented using technical parameters that differ from the reference parameters of Appendices S30 and S30A of the ITU Radio Regulations, proposed in the NPRM adoption of technical rules for U.S. DBS systems.[3/] Because the protection levels established by these Appendices are directly related to the technical parameters contained therein, the Commission also appropriately suggested that the level of protection to be provided to systems using non-standard parameters may be different from the level of protection in the BSS plans.[4/] Several parties in this proceeding have suggested that, to the contrary, even noncompliant DBS systems should, in essence, be treated as if they met the established standards.[5/]

SkyBridge urges the Commission to adopt a modified version of the rules it has proposed. Specifically, the rules should provide more detailed guidance to U.S. system designers and operators, as well as other DBS systems in Region 2, and other systems using the same frequency bands, regarding the consequences of divergence from the Plans. In addition, SkyBridge proposes that the Commission adopt a specific antenna pattern to be used as a baseline to determine protection of

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3/ NPRM at 27.

4/ Id. at 28-29.

5/ See, e.g., DirecTV Comments at 25-26; EchoStar Comments at 12-13; Primestar Comments at 22; Tempo Comments at 3.

U.S. DBS systems. Finally, the Commission should undertake additional studies to define appropriate protection criteria for U.S. DBS systems proposing to use modified technical parameters. These actions would enable the Commission to meet a number of important objectives, as follows:

(1) provide flexibility in the implementation of U.S. DBS systems so that they may take advantage of advances in communications satellite technology;

(2) take account of advances in satellite technology by reviewing and revising the protection criteria for U.S. DBS systems using modified parameters;

(3) provide guidance to the designers of U.S. DBS systems as to the technical rules with which they must comply, the degree of protection they can expect from other assignments in the Region 2 plan and other services using the same bands, as well as the level of protection they will have to provide other plan assignments and other services in the bands;

(4) ensure that other Region 2 plan assignments and other services using the DBS bands assigned to Region 2 are not adversely affected by implementation of U.S. systems using parameters inconsistent with those in Appendices S30 and S30A; and

(5) promote efficient use of the spectrum/orbit resource.

II. THE COMMISSION SHOULD ADOPT TECHNICAL RULES FOR U.S. DBS SYSTEMS THAT PROTECT MODIFIED SYSTEMS WHILE PERMITTING IMPLEMENTATION OF OTHER REGION 2 DBS SYSTEMS AND SERVICES USING THE SAME FREQUENCIES.

As SkyBridge stated in its initial comments in this proceeding, "the Commission is correct in its suggestion that it should develop regulations to supplement those specified in the ITU Radio Regulations . . . and such rules are necessary to ensure that modified systems are adequately protected themselves, and do

not threaten the entry of new DBS and other systems."[6/] The rules proposed in the NPRM generally advance these objectives.

In particular, proposed Section 25.111(c), consistent with the ITU Radio Regulations, specifies that, for systems using technical characteristics differing from those specified in the BSS plans,

> no protection from interference caused by radio stations authorized by other Administrations is guaranteed until the agreement of all affected Administrations is obtained and the modified frequency assignment becomes a part of the Plans. Authorizations for which coordination is not completed and/or for which the necessary agreements under Appendices S30 and S30A have not been obtained may be subject to additional terms and conditions as required to effect coordination or obtain the agreement of other Administrations.[7/]

The proposed Section 25.114 also is a step in the right direction by requiring that:

> (22) If the proposed DBS system's technical characteristics differ from those specified in the . . . BSS Plans, . . . each applicant shall provide:
>
> (i) the information requested in Annex 2 to Appendices S30 and S30A of the ITU's Radio Regulations. Further, applicants shall provide sufficient technical showing that the proposed system could operate satisfactorily if all assignments in the BSS and feeder link Plans were implemented.
>
> (ii) analyses of the proposed system with respect to the limits in Annex 1 to Appendices S30 and S30A.[8/]

[6/] SkyBridge Comments at 4.

[7/] NPRM at 42.

[8/] Id.

Finally, proposed Section 25.146(f) provides that, prior to completion of the Article 4 modification procedures and becoming part of the plan, a nonstandard system will operate on a non-interference basis with respect to both assignments that conform to the Plans and other services sharing the same frequency bands.[9/]

However, as discussed further below, these rules do not provide sufficient guidance to U.S. system designers and operators. Most importantly, the rules as proposed do not address how a system which proposes to utilize technical parameters differing from the plan will protect other U.S. systems, either DBS or otherwise, using the same frequencies, nor does the NPRM establish the criteria under which the nonstandard system will be protected from other DBS systems or other systems using the same frequencies.

A. The Commission Should Provide More Specificity in its Rules Governing DBS Systems Proposing to Use Modified Parameters.

First, as SkyBridge noted in its initial Comments,[10/] proposed Section 25.146(f) provides no guidance as to what constitutes "an adequate technical showing" in support of a proposed modification. The Commission in the NPRM (but not in the proposed rule) suggests that it will require "reasonable assurances that the agreement of the affected administration(s) can be obtained."[11/] It is far from clear what an administration's agreement would require in a given case. The Commission should define with some specificity the technical criteria that must be met, and incorporate those criteria into the proposed rule.

9/ NPRM at 44.

10/ SkyBridge Comments at 7, n.18.

11/ NPRM at 26.

Moreover, the Commission has provided no guidance as to what constitutes a "sufficient technical showing that the proposed system could operate satisfactorily if all assignments in the BSS and feeder link Plans were implemented," as it requires in proposed Section 25.114(22).[12/] More importantly, as noted above, the proposed rule fails to require a demonstration of the potential impact of the nonstandard DBS system on other systems and services using the same frequencies.

Without more specific criteria, it is difficult to envision how a U.S. DBS system using parameters inconsistent with those in the Region 2 plan can be implemented, without exposing itself to the risk of interference from, inter alia, Region 2 BSS systems, FSS systems in other Regions, NGSO FSS systems, and/or terrestrial systems, or without itself causing interference to such systems. As SkyBridge stated in its initial comments, "modified systems may be placing themselves and their customers in jeopardy by using equipment that may not be adequately protected from other DBS systems or other services using the bands."[13/]

Moreover, the Commission itself recognizes, in its proposed Section 25.111(c), that U.S. DBS systems using technical parameters differing from those in the BSS plans may "be subject to additional terms and conditions as required to effect coordination or obtain the agreement of other Administrations."[14/] Thus, more specific guidance is warranted prior to permitting such a system to be implemented. In this regard, the Commission can draw on its extensive experience in coordinating

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[12/] NPRM at 42.

[13/] SkyBridge Comments at 5.

[14/] NPRM at 42.

fixed and mobile satellite service systems with other administrations, as well as its experiences in coordinating the proposed modified DBS systems, so that, at a minimum, it can describe examples of specific terms and conditions to which modified DBS systems might be subject.[15/]

B. The Protection Requirements Applicable to Modified U.S. DBS Systems Should Take into Consideration Technology Advancements.

While advances in satellite communications technology, including space and earth stations, clearly warrant flexibility concerning modifications to the Region 2 BSS plan, such advances also call for re-examination of the protection requirements for modified U.S. DBS systems, at least for purposes of the Commission's rules.

To understand how proposed system modifications can affect the environment for both the modified system and other systems using the band, it is useful to consider the technical bases of Appendices S30 and S30A as they apply to Region 2. The Region 2 BSS plan was derived assuming a satellite EIRP of 56 dBW into a receive antenna of one-meter in diameter, with allowance for aggregate interference of 28 dB. However, the plan was developed on the basis of analog systems; current DBS systems using digital technology can operate effectively with a lower satellite EIRP and smaller receive antennas. These system changes reduce the cost of both the space and ground segment and also enable the earth stations to be more marketable and easy to install. However, such changes may also make systems

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15/ For example, the types of terms and conditions that are possible outcomes of satellite coordinations, such as those in the FSS, include: acceptance of more interference than originally anticipated, modification of coverage pattern, revision of EIRP level, agreement not to use certain frequencies or to coordinate closely on frequency use, and others. A variation of these conditions has been used in coordination revisions to BSS assignments in Regions 1 and 3.

more sensitive to interference from other systems, including those operating in accordance with the BSS plans.

To estimate the impact of interference from other systems on a system with revised parameters, consider the case of a revised DBS system with a satellite edge-of-coverage EIRP of 48 dBW and a receive antenna size of 45 cm. The reduced satellite EIRP (about 4 dB below the reference EIRP) would increase the aggregate C/I from other systems by approximately 4 dB. And, the difference in discrimination between a 1 meter and a 45 cm receive antenna would be approximately 9 dB.[16/] Consequently, the aggregate interference into the modified system would be on the order of 13 dB more than that anticipated when the Region 2 Plan was developed.

The impact due to interference on a modified system can also be evaluated accurately through the use of the MSPACE software available from the ITU.[17/] As an example consider USABSS1 and USABSS2, which are additional orbital locations for service to the United States (at 101.2° W.L. and 100.8° W.L.) using 45 cm antennas, for which the United States has sought modification to the Region 2 BSS plan.[18/] The margins computed by MSPACE for these systems vary between about -10 dB and -22 dB (corresponding to aggregate C/I's between 6 dB and

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16/ Assuming 9 degree separation for co-coverage systems based on the antenna pattern defined in Annex 5 of Appendix S30.

17/ MSPACE can generate a "reference situation" resulting from an additional system in the plan and analyze the impact of such system on other assignments and the impact of other assignments on the additional or modified system. The "reference situation" is the margin above (or below) the required protection criteria for a particular plan.

18/ See ITU Weekly Circular No. 2300, Special Section No. AP30/E/118, issued on October 21, 1997.

18 dB) depending on the test point considered.[19] Consequently, these additions to the plan would receive more interference than was envisioned when the plan was originally developed.[20]

It would not be in the public interest, let alone consistent with the ITU Radio Regulations, for a system with more sensitive technical parameters than those used in the plan to insist on the protection levels defined for reference parameters of the plan, even as it seeks to modify the plan. The proposed modified system should not be permitted to waste valuable spectrum/orbit resources or preclude future systems by insistence on a level of protection that was derived from parameters not employed by such system. To address this situation, the Commission needs to adopt specific rules that prevent a modified U.S. DBS system from seeking the level of

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[19] See Database for Region 2 BSS Plan, http://www.itu.ch/itudoc/itu-r/space/ap30ab.html.

[20] These examples are not to suggest that such modified or additional systems would not be able to perform acceptably should other administrations implement their assignments in accordance with the technical parameters in the plan. They probably could, due to a variety of factors, including the inherent conservatism in developing the BSS plans, as well as the greater resilience to interference of digital transmissions. Moreover, DBS system operators also are assuming that many other Region 2 BSS assignments will never be implemented. Nonetheless, the current U.S. DBS operators, if they believe they require the protection criteria of Appendices S30 and S30A, even while using modified technical parameters, are taking a risk that their systems could be interfered with by other DBS systems in Region 2 as well as by systems in other services.

Furthermore, in practice, the proposed modified systems and additional systems will be coordinated by the United States with other administrations. In the coordination process, the United States system operator likely would agree to operate with a lower C/I than that specified in the plan or accept more interference from systems of other administrations, including both DBS and other systems using the bands. This is the type of agreement that would need to be reflected in the "additional terms and conditions" which the Commission proposes in Section 24.111(c). NPRM at 42.

protection specified in the plan, if the modified technical parameters result in the system being more sensitive to interference.[21/] In this regard, the Commission should consider supplemental comments in this proceeding which address what protection levels are required by modified DBS systems. Detailed technical work on this subject can be undertaken both in the U.S. and internationally, within the ITU-R JWP 10-11S.[22/]

C. The Commission Should Adopt a Receive Antenna Mask Defining the Level of Protection for U.S. DBS Systems.

Control of earth station antenna sidelobes is among the greatest mitigating factors in reducing inter-satellite interference.[23/] As the Commission suggested in the NPRM and SkyBridge urged in its initial comments, the Commission

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21/ An important consideration is what metric should be used to determine the levels of protection of Region 2 plan modifications from Regions 1 and 3 plan assignments and modifications and from other services in Regions 1 and 3. Currently, Appendix S30 provides that such modifications are protected on the basis of power flux-density ("pfd") masks which were developed with one-meter antennas in mind. Consequently, the Radio Regulations will not afford Region 2 plan modifications the same level of protection if smaller, less discriminating antennas are used. Adoption of the proposed Commission rules would have no impact on this situation. However, presumably Region 2 systems using modified parameters recognize that they would not receive the same level of protection from interference defined in Annex 4 when they use less discriminating earth stations.

22/ In conjunction with evaluating the equivalent pfd ("epfd") and aggregate pfd ("apfd") limits on NGSO FSS systems required to protect GSO BSS systems, ITU-R JWP 10-11S has indicated to JTG 4-9-11 that a compendium of characteristics of BSS systems using the plans as well as those being considered for future plan modifications would be desirable. See, Liaison Statement of JWP 10-11S to JTG 4-9-11, Document 4-9-11/3-E, February 6, 1998. This information can provide a basis for evaluating appropriate protection criteria for GSO BSS systems.

23/ See, e.g., Pattan, Bruno, Satellite Systems: Principles and Technologies, Van Nostrand Reinhold, 1993 at 378.

can take a significant step in addressing the use of more sensitive, modified technical parameters in U.S. DBS systems by adopting antenna pattern performance standards as a baseline for determining protection criteria.[24/] The Commission need not mandate the use of any particular antenna pattern or antenna size, but should afford interference protection only to systems that meet performance standards that are realistically achievable today. Adoption of antenna performance criteria would be analogous to the Commission's policy of providing protection to receive-only earth stations which seek to register, only to the extent they meet certain antenna discrimination standards.[25/]

As SkyBridge noted in its initial comments,[26/] the Commission should consider adopting the antenna pattern in ITU-R Recommendation BO.1213. As evidenced by the fact that the 1997 World Radiocommunication Conference (WRC-97) utilized this antenna pattern to develop the revised Region 1 and 3 BSS plans, it is recognized as achievable from a technological and economic perspective.

[24/] NPRM at 29; SkyBridge Comments at 5. A number of commenters opposed this suggestion. See, e.g., EchoStar Comments at 12; Primestar Comments at 22; Tempo Comments at 4.

[25/] See, Deregulation of Domestic Receive-Only Satellite Earth Stations, Second Report and Order, FCC 86-133 (rel. April 10, 1986). The Commission, when it issues public notices of requests for registration of such receive-only earth stations, includes a provision which states: "No protection beyond that afforded in 'Deregulation of Domestic Receive-Only Satellite Earth Stations' will be provided for TVRO earth stations . . . the potential levels of interference caused by satellite transmissions are already defined and the actual level of any protection desired by an applicant from inter-satellite interference will be achieved by the choice of receiving antenna performance selected by parties installing new receive-only earth stations." Public Notice Report No. DS-1828, April 1, 1998.

[26/] SkyBridge Comments at 6.

III. NO PARTY COMMENTING IN THIS PROCEEDING PROVIDED ANY RATIONAL BASIS FOR PERMITTING UNFETTERED FLEXIBILITY IN MODIFICATIONS OF U.S. DBS SYSTEMS.

A number of commenters in this proceeding urge that the Commission give maximum technical flexibility to DBS applicants and operators, without any concomitant reduction in interference protection.[27/] Although SkyBridge agrees with the DBS commenters that existing U.S. DBS systems should be protected and that the service should be allowed to develop with reasonable flexibility, the Commission must undertake a review of the appropriate protection requirements for U.S. modified DBS systems, in view of the vastly changed parameters being employed by such systems. The operators of such systems cannot have their cake and eat it, too: They cannot implement systems with more sensitive parameters than the Appendices S30 and S30A characteristics, and then expect to receive protection at the levels specified in those Appendices -- levels that bear no rational relationship to the parameters of the modified system. To permit this would be to work a severe injustice on the other users of the Region 2 BSS plan as well as other services in the frequency bands.[28/] No commenter in this proceeding in any way refuted this conclusion. Indeed, SkyBridge is encouraged that several DBS commenters, including DirecTV, urge the

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[27/] See PanAmSat Comments at 2; Tempo Comments at 4; USSB Comments at 5; EchoStar Comments at 12; DirecTV Comments at 25.

[28/] Technical standards would also ensure efficient spectrum use by future entrants, including those proposing to use BSS orbital assignments of other administrations with modified coverage areas to provide service to the U.S. See SkyBridge Comments at 6, n.17.

Commission to establish "a better baseline against which future potential interference sources to DBS service" can be measured.[29/]

The Commission must resist the claims of certain commenters that technology will be frozen if it adopts any technical rules for U.S. DBS systems.[30/] Despite the extensive technical rules applied to the U.S. FSS since the mid-1980s, innovation has not stopped in either satellite technology or services. Examples of new technologies that have been implemented include digitization, compression (allowing much greater capacity), higher-power satellites, use of spot-beam technology, battery advances and others. Within the FSS, the certainty of the interference environment actually has made possible the introduction of new services such as VSAT networks, direct-to-home video, bandwidth-on-demand and occasional use. With a free-for-all technical environment, it would have been far too risky for operators to implement these services which are extremely dependent on assurance of protection from interference from other systems and users.

The Commission has had extensive experience in finding a balance between allowing for technical innovation and flexibility, while promoting efficient use of the spectrum/orbit resource. In adopting its rules on Reduced Orbital Spacing, the Commission specified antenna performance as a key mechanism of ensuring that satellites could operate without fear of interference.[31/] While the spacing between FSS satellites is much closer than that of DBS satellites, DBS satellites still

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[29/] DirecTV Comments at 24.

[30/] Primestar Comments at 22.

[31/] Licensing of Space Stations in the Domestic Fixed-Satellite Service, 48 Fed. Reg. 40233 (September 6, 1983), at ¶ 94.

must find a way to operate without interfering with or precluding the operation of adjacent U.S. DBS satellites, other Region 2 DBS satellites, Region 1 and 3 FSS satellites, NGSO FSS systems and terrestrial systems. With vastly modified system parameters, using a specified receive antenna performance as a baseline to determine the degree to which a DBS system will be protected, is a reasonable way to proceed.

Similarly, in DBS, compression technology and development of smaller receive earth stations have actually made the service economically viable. SkyBridge in no way seeks to limit DBS systems in the use of advanced technologies and creative service provision. However, concomitant with implementation of modified technical parameters must come a re-evaluation of what protection requirements are appropriate for U.S. systems to ensure that other Region 2 DBS systems and other services in the band can be implemented.

IV. THE COMMISSION MUST REJECT THE CLAIMS OF DIRECTV THAT NGSO FSS SYSTEMS WILL CAUSE HARM TO DBS SYSTEMS.

As SkyBridge noted in its initial comments,[32/] the Commission explicitly stated in the NPRM that BSS/NGSO FSS frequency re-use issues are not the focus of this rulemaking, but rather will be fully considered in future rulemakings.[33/] Nonetheless, SkyBridge is compelled to respond to DirecTV's baseless assertion in its comments that "the introduction of NGSO operations into bands used by DBS providers poses a grave threat to DBS operations."[34/]

32/ SkyBridge Comments at 2.

33/ NPRM at 29.

34/ DirecTV Comments at 27. See also Primestar Comments at 21; USSB Comments at 5, n.5; Tempo Comments at 4, n.7.

As SkyBridge has demonstrated in a variety of forums, the SkyBridge System, and the provisional power limits applicable to NGSO FSS systems adopted at WRC-97, have been designed to fully protect DBS systems. Most recently, in its opposition to petitions to deny filed against the SkyBridge Application,[35/] SkyBridge described in detail (in response to concerns raised by, inter alia, DirecTV), how the SkyBridge System will protect DBS systems not in conformity with the BBS plans. The analysis included a demonstration of SkyBridge's ability to cope with higher EIRPs from DBS systems, as contemplated by DirecTV.[36/] It also provided an assessment of the impact on DBS systems of NGSO systems that comply with the WRC-97 limits, as a function of DBS receive-dish diameter. As DirecTV has repeatedly refused to provide any technical information on the system parameters that it believes may be in jeopardy by NGSO FSS systems, SkyBridge considered a wide range of EIRPs and antenna diameters (including antennas as small as 30 cm). The analysis demonstrated that the SkyBridge System can protect modified DBS systems.

35/ Opposition of SkyBridge, File Nos. 48-SAT-P/LA-97, 89-SAT-AMEND-97, filed Feb. 20, 1998.

36/ See also SkyBridge Amendment, Appendix C, Section III.

V. CONCLUSION

For the foregoing reasons, the Commission should seek to adopt policies and rules governing the DBS service that encourage efficient use of the BSS spectrum and orbital resources.

Respectfully submitted,

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I hereby certify that the foregoing Reply Comments of SkyBridge L.L.C. was served by first-class mail, postage prepaid, this 21st day of April, 1998 on the following persons:

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